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NOTES ON GEOGRAPHIC DISTRIBUTION

First record of *Cononedys bituberculata* Becker, 1915 (Insecta: Diptera: Bombyliidae) from Iran, with description of the spermatheca

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ABSTRACT: The genus *Cononedys* Hermann, 1907 and its species, *C. bituberculata* Becker, 1915 are recorded for the first time from Iran. Specimens were collected with Malaise traps from northern Iran. Morphological characters including the first description of the female spermatheca and also geographical distribution of the newly recorded species are provided.

The bee flies of the family Bombyliidae (Insecta: Diptera) is a large family and comprises more than 4500 species in all continents except the Arctic and Antarctic. These flies are most common in arid and semiarid environments (Hull 1973). The larvae are predators or parasitoids of eggs and larvae of other insect such as other Diptera, Hymenoptera, Coleoptera and Lepidoptera (Du Merle 1975). Adults generally feed on nectar and pollen thus may play an important role in pollination of wild flowers (Hull 1973).

The genus *Cononedys* Hermann, 1907 belongs to the tribe Aphoebantini Becker and the subfamily Anthracinae and includes 10 described species in the Palaearctic region. This genus is characterized by: postcranium with a deep or shallow trough around a divided occipital foramen; compound eyes with a bisecting line; head is very broad when viewed from the front, abdomen conical, body is covered with hairs and scales, R_{2+3} arising from an acute angle near the origin of R_s; wing with two submarginal cells; flagellomere with three segments, aedeagus elongate and narrow (Greathead and Evenhuis 1997). *Cononedys bituberculata* was originally described by Becker (1915), and its holotype held in the Hungarian Natural History Museum, which has been destroyed (Evenhuis and Greathead 1999).

Material for this study was collected from different habitats of the northern Iran using malaise traps during 2010. Samples were collected between March and November. The specimens were extracted from the malaise traps and sorted weekly. Specimens were dehydrated in 99.6% ethanol for 5-10 minutes and then placed in a pure solution of hexamethyldisilazane (HMDS) for15-20 minutes. The specimens finally placed in a glass plate for drying. The dried specimens were then labeled. Morphological terminology follows Greathead and Evenhuis (1997) and Zaitzev (1996). Description of female genitalia follows Lamas *et al.* (2002). Female genitalia preparations were made by macerating the apical portion of abdomen in cold 10% KOH for 14-15 hours, and then washed with distilled water and transferred to glycerin.

FIGURE 1. Iran- Alborz province, where the Cononedys bituberculata specimens have been collected.

All specimens are deposited in the insect collection of the Department of Entomology, Tarbiat Modares University, Tehran, Iran.

In this study, only one species from the genus *Cononedys*, *Cononedys bituberculata* was collected and identified. This is the first record of this genus and species from Iran.

***Cononedys bituberculata* Becker, 1915** (Figure 2)

Cononedys bituberculata Becker, 1915a: 322. Type locality: Tunisia [H (destroyed) in HNHM].

Material examined: Iran, Alborz province, Arangeh (35°55′7.20′′ N, 51°05′9.24′′ E), 1891 m.a.s.l., 29.vi.2010, (2♂, 3♀); 6.vii.2010, (3♂, 3♀); 13.vii.2010, (2♀); Shahrestanak, (35°58′16.26′′ N, 51°21′25.80′′ E), 2225 m.a.s.l., 20.vii.2010, (1♀), leg. M. Kheirandish. **General distribution:** Israel and Tunisia (Evenhuis and Greathead 1999). New record from Iran.

Diagnosis: Head: face covered with yellow and black scattered hairs, occiput and front with yellow hairs; flagellum three segmented, 3rd flagellar segment yellow (Figure 2I). Thorax: anterior margin of scutellum covered with yellowish white hairs, posterior margin of scutellum shiny black and with some long yellow hairs (Figure 2D). Wing: costal vein pale yellow, R_5 cell close (Figure 2B), halter yellowish brown. Abdomen: The abdomen in male conical, narrowing to tip, in female abdomen covered by yellowish white scale and slightly black hairs (Figure 2E). Lateral sides of first abdominal segment covered by dense yellow hairs (Figure 2A), posterior margin of all teregites covered by yellow hairs (Figure 2E). Legs: femora black and covered by yellow scales, tibia yellowish brown and covered with black hairs and yellow thorn, tarsus brownish black (Figure 2C).

Female genitalia: (Figure 2H), spermathecal reservoir globular (Figure 2F), narrow at the end, first half sclerotized, apical spermathecal duct membranous and yellow (Figure 2G), sperm pump brown, with well sclerotized upper and lower valve (Figure 2G), basal spermathecal duct membranous, common spermathecal duct short, shorter than apical ones; furca with two sclerotized bars.

Little information is available on the genus *Cononedys*. This genus has been reported from tropical and temperate areas (Evenhuis and Greathead 1999). Samples in this study were also collected from the temperate area in late June and July and not observed in other months.

Bezzi (1924) separated *Cononedys* from *Aphoebantus* using following morphological characters: in the genus *Cononedys* anal cell is closed, R_5 cell present and pulvilli sometimes present. Hull (1973) referred *Cononedys* as a subgenus of *Aphoebantus,* because in the genus *Aphoebantus* flagellomere has two distinct apical micro-segments. Greathead and Evenhuis (1997) separated *Cononedys* from *Aphoebantus*, because in the genus *Cononedys* flagellomere has three apical micro-segments and aedeagus is elongated and narrow, with apodeme on female tergite 8, however Iranian specimens of *Cononedys bituberculata* have brownish to black tarsi.

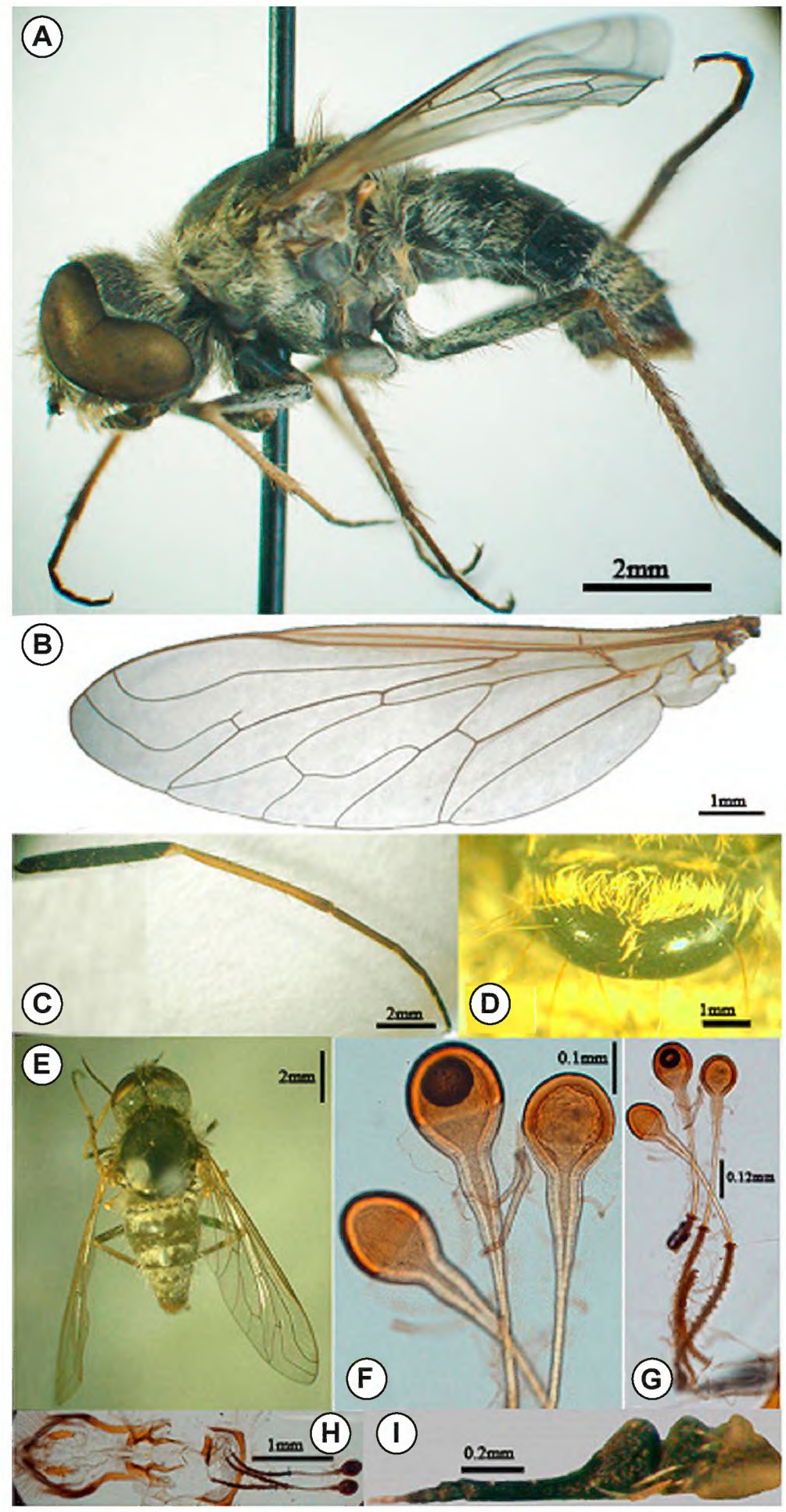

FIGURE 2. *Cononedys bituberculata* Becker: A- Female, general habitus (lateral view), B- Wing, C- Hind leg, D- Scutellum, E- Female, general habitus (dorsal view), F- Spermathecal reservoir, G- Apical spermathecal duct and sperm pump, H- Female genitalia, I- Antenna.

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